

Tuesday, March 20, 2012
SPECIAL SESSION: PLANETARY HYDROLOGY: WET WORLDS
8:30 a.m. Waterway Ballroom 1

Chairs: Karl Mitchell
Giles Marion

- 8:30 a.m. Richardson M. I. * Newman C. E. Soto A. S.
[Climate, Precipitation, and Aridity on the Terrestrial Bodies](#) [#2913]
 We discuss the climate constraints on the hydrological cycles on the terrestrial bodies.
- 8:45 a.m. Andrews-Hanna J. C. * Soto A. Richardson M. I.
[Meridiani Planum and Gale Crater: Hydrology and Climate of Mars at the Noachian-Hesperian Boundary](#) [#2706]
 We combine GCM predictions of rainfall patterns on early Mars with hydrological models of groundwater flow to investigate the formation of sulfate-rich sedimentary deposits at Meridiani Planum and Gale Crater.
- 9:00 a.m. Halevy I. * Head J. W. III
[Punctuated Volcanism, Transient Warming and Global Change in the Late Noachian-Early Hesperian](#) [#1908]
 The dynamics of atmospheric sulfur chemistry during phases of episodic volcanism, punctuated by long quiescent periods, warmed the surface of Mars for multiple episodes of tens to hundreds of years during the late Noachian and early Hesperian.
- 9:15 a.m. Carter J. * Poulet F.
[Global Investigation of Hydrated Exposures on Mars: Evidence for a Clay Cycle](#) [#1436]
 Global-scale investigation of hydrated minerals on Mars reveal the possible existence of a clay cycle similar to Earth's on early Mars.
- 9:30 a.m. Popa C. * Di Achille G. Esposito F. Mennella V. Colangeli L.
[Evidences of Possible Hydrothermal Alteration in Xanthe Terra: Implications for Surface Water on Early Mars](#) [#2516]
 The work traces the early Noachian alteration in the western part of Xanthe Terra, Mars, and tries to build a rationale for alteration type and time of pristine rock types, in connection to channel and deltaic systems formation.
- 9:45 a.m. McEwen A. S. * Keszthelyi L. P. Grant J. A.
[Have There Been Large, Recent \(Mid-Late Amazonian\) Water Floods on Mars?](#) [#1612]
 Sparsely-cratered units in martian outflow channels date post-channel lava flows rather than water flooding events, so there isn't clear evidence for a deep, extant groundwater table.
- 10:00 a.m. Kargel J. S. * Furfaro R.
[A Frozen Lake/Glaciolacustrine Model of Crater Greg \(Mars\)](#) [#2629]
 Crater Greg (near Hellas, Mars) exhibits some of the most compelling evidence of glaciation on Mars. The depositional environment and paleoclimatic implications are not clear. Here we propose a frozen lake model of glacier-like flow formation.
- 10:15 a.m. Stofan E. R. Lunine J. I. Lorenz R. D. Kirk R. L. Aharonson O. Hayes A. G. Lucas A. Turtle E. P. Wall S. D. * Wood C. A.
[Shorelines of Ligeia Mare, Titan](#) [#1556]
 The general morphology of the shorelines of Ligeia Mare, Titan, can be interpreted using Earth analogues to better understand their possible modes of formation and modification.

- 10:30 a.m. Lucas A. * Aharonson O. Hayes A. G. Deledalle C. Wye L. Kirk R. Howington-Kraus E. Cassini Radar Science Team
[Clues to Titan Hydrology from Enhanced SAR Image Processing](#) [#2566]
In order to quantify the interactions of fluvial/marine processes on Titan with the topography we present new insights based on an adapted algorithm for de-noising images. The data reveals details of submerged valleys and gradients in the bathymetry.
- 10:45 a.m. Drummond S. A. * Burr D. M. Cartwright R. Black B. A. Perron J. T.
[Morphologic Classification and Geologic Implications of Titan Fluvial Features](#) [#2868]
Drainage pattern analysis of fluvial networks on Titan indicates a predominance of rectangular networks. Through comparison with terrestrial analogs, we infer a tectonic influence and suggest possible stress mechanisms.
- 11:00 a.m. Lorenz R. D. * Turtle E. P.
[How Often Does it Rain on Titan?](#) [#2472]
Titan's methane rains / Just days in a century / Perhaps TiME will tell.
- 11:15 a.m. Vance S. * Sotin C. Choukroun M. Mitchell K.
[Titan's Subsurface Alkanology](#) [#2939]
Hydrocarbon flows / Through Titan's cold lithosphere / Are explored herein.
- 11:30 a.m. Moore J. M. * Nimmo F.
[Does Titan's Landscape Betray the Late Acquisition of Its Current Atmosphere?](#) [#1248]
Titan may have acquired its massive atmosphere relatively recently in solar system history. The appearance of a thick atmosphere may have changed Titan's global topography. This change may be expressed in the latitudinal distribution of landforms.